Solubility of Thiophene in Propane– N,N-Dimethylformamide at Temperatures from 313 to 363 K

L.E. Camacho-Camacho, O. Elizalde-Solis, and L.A. Galicia-Luna[C,S]

Instituto Politecnico Nacional
Esiqie, Lab. Termodinamica
Edif. Z, 1 Piso, Col. Lindavista
C.P. 07738, Mexico, D.F. Mexico
lagalicia@dsi.com.mx

The extraction of sulfur compounds from gasoline is important for the petroleum industry. As a first step, knowledge of the solubility behavior of sulfur in supercritical solvents is critical for the development of new separation process in the refining industry. In this work, a static analytic apparatus was used to determine experimental solubilities of thiophene in carbon dioxide– N,N-dimethylformamide from 313 to 353 K. The equilibrium cell is made of titanium alloy (TA6V); it comprises two symmetrical titanium holders for sapphire windows, two caps holding one or three Rolsi^{TM} samplers according to the temperature of the study, 473 K or 673 K respectively. The internal volume of the cell is approximately 100 cc.

The experimental data are represented using the Patel-Teja equation of state with Wong-Sandler type mixing rules. In this work, our experimental data are well represented by the model.